

REMARKS

Reexamination and reconsideration in light of the foregoing amendment and following remarks is respectfully requested.

Claims 2-8, 10, 11, 13-21 and 23-25 are pending in this application. Claims 1, 9, 12 and 22 have been canceled. Claims 1, 9 and 12 have been rewritten as new claims 23, 24 and 25, respectively. No new matter has been added to the application.

Applicants note the Examiner's consideration of the art cited in the Information Disclosure Statement filed December 20, 2001, as acknowledged in the Office Action Summary. Applicants further note the Examiner's acknowledgment of Applicants' claim for foreign priority under 35 U.S.C. § 119 and receipt of the certified priority document.

OBJECTION TO THE CLAIMS

Claims 1-6 stand objected to for failing to be in proper format in that the claims do not begin with a capital letter and end in a period. Claim 1 has been rewritten as new claim 23. It is now believed that the new claim is in proper format. During the preparation of this response, it was further noted that claims 9, 12 and 15-17 also contained multiple periods. Claims 9 and 12 have been rewritten as new claims 24 and 25, respectively, while claims 15-17 have been amended to change "claim 14." to --claim 14:--. It is believed that these claims are now in proper claim format.

Claims 7-22 stand objected to as being improper multiple dependent claims. Claims 7, 10 and 13 have been amended to be dependent on claims which are not multiply dependent. Claims 7, 8, 10, 11 and 13-21 are now believed to be in proper multiple claim format. As for claims 9 and 12, these claims have been rewritten as new claims 24 and 25, respectively. These

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new claims are now believed to be in proper multiple dependent claim format, since they are not dependent on any multiple dependent claim. Claim 22 has been canceled, thereby rendering the rejection as to this claim moot. By these amendments, it is believed that the objection as to claims 7-22 is overcome.

OBVIOUSNESS-TYPE DOUBLE PATENTING REJECTION

Claims 1-6 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-20 of (U.S. Application No. 10/019,260). This is a provisional rejection based on a pending patent application. The rejection can be overcome by filing a terminal disclaimer. It is respectfully requested that the filing of the terminal disclaimer be held in abeyance pending the allowance of claims in this application and in U.S. Application No. 10/019,260.

ANTICIPATION REJECTION BY SHIMIZU

Claims 1-6 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Shimizu (U.S. Patent No. 5,907,005). According to the Examiner, "Shimizu teaches a varnish composition comprising polyamic acid components as specified in column 3, lines 50-59 and/or a soluble polyimide as specified." Claim 1 has been canceled and rewritten as new base claim 23. New claim 23 sets forth a varnish composition comprising a polymer and a solvent. The polymer comprises three components: (i) a polyamic acid B expressed by formula (1), (ii) a polyamic acid A expressed by formula (2), and (iii) an N-substituted polyamide expressed by formula (3). The polymer is dissolved in the solvent. The polymer comprises 0.1 to 40 wt.% of the varnish composition. The varnish composition of the invention has excellent coating properties, and when used as a liquid crystal alignment layer, there is an improvement in the electrical properties

such as in the residual charge, voltage holding ratio and image sticking as well as in the pre-tilt angle and alignment.

Varnishes having a polymer component consisting of polyamic acid B expressed by formula (1), the polyamic acid A expressed by formula (2), or the N-substituted polyamide expressed by formula (3), when used for form an alignment layer, have inferior coating and electrical properties such as residual charge, voltage holding ratio and image sticking, and pre-tilt angle and alignment properties. See Comparative Examples 12 to 19 and 20 to 23 where varnishes comprising combinations of (i) polyamic acid B and polyamic acid A, and (ii) polyamic acid B and the N-substituted polyamide, respectively, when formed as alignment layer exhibit, *inter alia*, poor electrical properties such as image sticking, or questionable alignment properties.

Shimizu discloses a varnish composition suitable for producing a liquid crystal alignment layer of 10s to 100 nm thickness, the layer comprising 0.1 to 40 wt.% of a polyamic acid or soluble polyimide and 60 to 99.9 wt.% of a solvent. The solvent comprises 5 to 80 wt.% of at least one compound selected from the solvent component A and 95 to 20 wt.% of at least one compound selected from the group consisting of the component B and component C, where components A, B and C are defined as follows:

Component A: N-methyl-2-pyrrolidone, N-methylcaprolactam, N-methylpropionamide, N,N-dimethylacetamide, dimethylsulfoxide, N,N-dimethylformamide, N,N-diethylformamide, N,N-diethylacetamide, dimethylimidazolidinone, γ -butyrolactone;

Component B: alkyl lactate, 3-methoxy-3-methylbutanol, tetralin, decalin, isophoron, ethylcarbitol; and

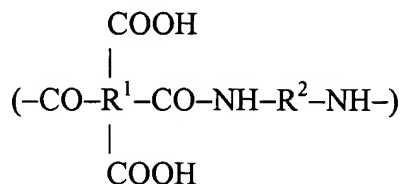
Component C: $R_1-O(C_3H_6O)_nH$ wherein n is 1 or 2, R_1 is a 4C alkyl when n is 1, and 1-4C alkyl when n is 2.

The Shimizu invention is aimed at improving the coating properties of the varnish by improving the uniformity in thickness of the applied film, reducing the toxicity, and improving the stability of viscosity of the varnish. These improvements are achieved by using a specific mixture of the solvents. On the other hand, the varnish composition as the present invention has three components for the polymer: (i) a polyamic acid B having structure with tetracarboxylic acid-derived four valent organic residue and diamine-derived two valent organic residue expressed by formula (1); (ii) a polyamic acid A having tetracarboxylic acid-derived four valent organic residue and diamine-derived two valent organic residue, where either of them with a side chain having 3 or more carbons and expressed by formula (2); and (iii) an N-substituted polyamide obtained by reacting a diamine with a dicarboxylic acid or its derivative and expressed by formula (3). The Shimizu varnish composition and the varnish composition of the present invention are not identical or even substantially identical.

The factual determination of anticipation requires the disclosure in a single reference of every element of the claimed invention. *In re Spada*, 911 F.2d 705, 708, 15 USPQ2d 1655, 1657 (Fed. Cir. 1990); *In re Bond*, 910 F.2d 831, 832, 15 USPQ2d 1566, 1567 (Fed. Cir. 1990); *Diversitech Corp. v. Century Steps, Inc.*, 850 F.2d 675, 677-678, 7 USPQ2d 1315, 1317 (Fed. Cir. 1988); *In re Marshall*, 578 F.2d 301, 304, 198 USPQ 344, 346 (CCPA 1978); *In re Arkley*, 455 F.2d 586, 587, 172 USPQ 524, 526 (CCPA 1972). Moreover, it is incumbent upon the Examiner to identify wherein each and every facet of the claimed invention is disclosed in the applied reference. *Lindemann Maschinenfabrik GmbH v. American Hoist and Derrick*, 730 F.2d

1452, 1458, 221 USPQ 481, 485 (Fed. Cir. 1984). On the present record the Examiner has not specified where there is a teaching in Shimizu of combining a polyamic acid B with a polyamic acid A and an N-substituted polyamide in a solvent as required by claim 23 and the claims dependent thereon, namely, claims 2-6.

Shimitzu discloses a varnish composition comprising a solvent and a polyamic acid having the following formula:



where R^1 is quadriavalent alicyclic or aromatic hydrocarbon residue or a heterocyclic residue and R^2 is a bivalent group mainly containing a hydrocarbon residue that contains groups such as $-\text{O}-$, $-\text{S}-$, halogen, and $-\text{CN}$ (see col. 3, line 55). Base claim 23 recites that the polyamic B component of the composition recites that R^1 is a tetravalent organic radical derived from a tetracarboxylic acid while R^2 is a divalent organic radical derived from diamines. Shimizu discloses that the above-referenced formula can be obtained by the reaction of an alicyclic tetracarboxylic acid and a diamino compound (col. 3, line 65 to col. 4, line 2). However, Shimizu does not disclose a polymer that also includes a polyamic acid A represented by formula (2) and an N-substituted polyamide represented by formula (3) as set forth in base claim 23.

The varnish composition of the present invention, when used as a liquid crystal alignment layer, has excellent coating properties and a good balance between a desirable residual charge, voltage holding ratio and image sticking, and a desirable pre-tilt angle and alignment properties.

Shimizu does not disclose a varnish composition having the aforesaid properties, let alone a composition recited in claim 23 and the claims dependent thereon.

For all of the foregoing reasons, the Examiner has not establish a *prima facie* case of anticipation under 35 U.S.C. § 102(b). Accordingly, it is respectfully requested that the rejection over Shimizu be reconsidered and withdrawn.

ANTICIPATION REJECTION BY KIMURA ET AL.

Claims 1-6 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Kimura et al. (U.S. Patent No. 5,783,656). According to the Examiner, "Kimura teaches polyamic acid polyimide liquid crystal alignment agents wherein the polyamic acids are obtainable by reacting diamine compounds of formula 1 with tetracarboxylic acid dianhydrides and the polyimides are obtainable by dehydration and subsequent ring closure of the polyamic acid (abstract)." The Examiner notes that the "specified materials" recited in formulas 22 and 23 of the patent as examples of the a composition that is "within the boundaries as set forth in Applicants [sic, Applicants'] claims 2-3 for concentrations." Applicants respectively traverse this rejection.

In order to establish anticipation, as discussed *supra*, the Examiner must identify wherein each and every facet of the claimed invention is disclosed in the applied reference. Base claim 1 has been canceled and represented as new claim 23. Claim 23 requires two polyamic acids in the composition. The composition disclosed by Kimura et al. includes a composition comprising only one polyamic acid (formula 22) combined with a polyimide (formula 23). Neither the polyamic acid nor the polyimide disclosed by Kimura et al. is a polyamide. The polymer recited in claim 23 requires a N-substituted polyamide, which is not disclosed in Kimura et al.

Kimura et al. disclose a liquid crystal aligning agent containing a polyamic acid expressed by formula (22) and a polyimide expressed by formula (23) which is obtained by dehydrating and ring-closing of the polyamic acid expressed by the above formula (22), wherein X and Y in formulas (22) and (23) independently denote a divalent bonding group expressed by (a), (b), (c) or (d). As evident from the above structures, the polyamic acid (22) and the polyimide (23) have a side chain containing an amino linkage when (c) or (d) is the group linking X or Y. However, neither the polyamic acid nor the polyimide is a polyamide, even though they have an amino group in the side chain.

The varnish composition of the present invention comprises a polymer contained in a solvent. The polymer of the varnish composition contains specific amounts of three polymer components: (i) a polyamic acid B expressed by formula (1), (ii) a polyamic acid A expressed by formula (2) in which the tetracarboxylic acid-derived tetravalent organic residue and/or the diamine-derived divalent organic residue has a side chain having 3 or more carbon atoms, and (iii) an N-substituted polyamide resin expressed by formula (3) obtained by reacting a diamine and a dicarboxylic acid or its derivative.

The composition disclosed in Kimura et al. is the liquid crystal aligning agent containing a polyamic acid expressed by formula (22) and the polyimide obtained by dehydrating and ring-closing of the polyamic acid. Kimura et al. do not disclose a composition that also includes a N-substituted polyamide expressed by formula (3) obtained by reacting a diamine and a dicarboxylic acid or its derivative. Further, the Kimura et al. do not disclose that the polymer of the composition includes a polyamide. The reference does suggest structures of a polyamic acid expressed by formula (22) and a polyimide obtained by dehydrating and ring-closing of the

polyamic acid having a cyclohexyl group or a phenyl group linked in the side chain through an amide group. However, these structures are not polyamides as expressed by formula (3) in claim 23 and the claims dependent thereon. Kimura's disclosure never suggests a polyamide in the polymer. Accordingly, the varnish composition recited in the claims of the present application is not anticipated by Kimura et al. Also, the liquid crystal display element using the varnish composition for liquid crystal alignment layer is not disclosed in the reference.

As discussed *supra*, the varnish composition of the present invention has excellent coating properties and provides a good balance between the electrical properties such as desirable residual charge, voltage holding ratio and image sticking, and the desirable pre-tilt angle and alignment properties for a liquid crystal alignment layer obtained by using the varnish composition. Kimura et al. do not disclose a varnish composition having these properties.

For the foregoing reasons, the Examiner has not establish a *prima facie* case of anticipation under 35 U.S.C. § 102(b). Accordingly, it is respectfully requested that the rejection over Kimura et al. be reconsidered and withdrawn.

CONCLUSION

It is submitted that the claims 2-8, 10, 11, 13-21 and 23-25 are patentable over the teachings of the prior art relied upon by the Examiner. Accordingly, favorable reconsideration of the claims is requested in light of the preceding amendments and remarks. Allowance of the claims is courteously solicited.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including

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extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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A handwritten signature in black ink, appearing to read "Cameron Weiffenbach", written in a cursive style.

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